REMARKS/ARGUMENTS

The specification has been amended to correct the errors pointed out by the Examiner both in the drawings and the specification. No new matter was added.

Claim Rejections under Section 102 – Kawakami

Examiner rejected Claims 1-4 and 8-13 as being anticipated by Kawakami. Applicant request reconsideration:

Kawakami does not describe or suggest a device to obtain "multi-spectral images" as claimed by Applicants. The device described by Kawakami is a device for fluorescence imaging at a single spectral range. See paragraph [0159] on page 23 where Kawakami specifies his single wavelength of 740 nm. All of Applicants' claims are limited by "a tunable optical parametric oscillator for producing light at selected narrow band wavelengths within a broad spectral range" and "a camera ... positioned to obtain multi-spectral images of [the] target". Nothing in Kawakami suggest a multi-spectral image device as claimed by Applicants.

Claim Rejections under Section 102 – Utzinger

Examiner Rejected Claims 1, 2, 4 and 8-13 as being anticipated Utzinger. Applicants request reconsideration:

The Utzinger device is the type of prior art device described in the Background section of the present application. In all cases Utzinger uses filters to obtain multi-spectral images. Utzinger states in his abstract:

"Tissue is illuminated with a primary radiation to generate secondary radiation, which is filtered to select a second wavelength and a second polarization." His secondary filters are shown at 22, 24 and 26. In the one case where he refers to a tunable parametric

oscillator (column 4, lines 8-9), he is using the OPO to produce light at a narrowband wavelength chosen to excite fluorescence on the cervix, not to "produce short pulses of light at selected narrow band wavelengths within a broad spectral range".

Amendments to the Claims

To clearly distinguish the present invention from Kawakami and Utzinger, Applicants have amended the claims to restrict them to multi-spectral images obtained form light reflected from or transmitted through the target. Claim 10 relating to monitoring fluorescence has been cancelled without prejudice. Both Kawakami and Utzinger use the OPO only in connection with fluorescence measurements. In fluorescence measurements transmitted and reflected light is typically filtered out.

Rejection of Section 103 Claims

Some of the dependent claims were rejected as being obvious by combining other references with Utzinger or Kawakami. Since the independent claim as presently amended should be allowable for reasons set forth above, these dependent claims should be allowable as claims dependent on allowable claims.

Summary

The present invention provides a tunable OPO that is used to directly illuminate a target and the reflected or transmitted image of the target at the same wavelength as the laser is recorded. The process is repeated multiple times, while the laser wavelength is changed. The result is a "stack" of images, each taken at a different wavelength that can be used to "identify the chemical components of the target. The invention is based on the ability of the OPO system to generate narrow band wavelengths one at a time, and there is no need for any filters to restrict either the illumination source or the detection device. The ability to obtain high intensity of the tunable laser source and the short pulse permits detection of variations in optical parameters of reflection and transmission. These images can be obtained in various spectral ranges and can be useful in a wide variety of applications. The prior art does not disclose or suggest the present invention.

CONCLUSION

Thus, for all the reasons given above, this application, as the claims are presently limited, defines a novel, patentable, and truly valuable invention. Hence allowance of all outstanding claims is respectfully submitted to be proper and is respectfully solicited.

Respectfully Submitted,

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